Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE NORTH AMERICAN SPECIES OF GYRINUS

(COLEOPTERA)

BY H. C. FALL

It would be difficult to find in collections of American Coleoptera, a group or genus in which the species are so consistently and completely muddled as they are in the genus here considered. It matters little whether the collection be large or small, whether it be that of a veteran or a novice, the difference is only one of degree of confusion, and, with few exceptions, the name labels might quite as well have been drawn from a hat, so far as accuracy of assignment is concerned. Gyrini occur everywhere in our territory, and owing to their habit of congregating in schools, especially in mid and late summer, may be, and usually are at one time or another, gathered in numbers by every collector. But the difficulties of separation and identification of material are so great as to discourage much further effort, and he soon gives them up as a hard lot. They are a hard lot; there does not seem to be much to say about them taxonomically, and what little there is in the books is of no very great assistance.

In 1868, there appeared a short paper on the "Gyrinidae of America North of Mexico" by Dr. LeConte, in which the species are briefly characterized, but not tabulated, except very broadly in groups. This paper has served as the basis for all subsequent references to the genus by American authors, who have added nothing to the characters given by LeConte. In the more recent Monograph of the Gyrinidae of the world by Dr. Regimbart, our previously described species of course find a place, and two new ones—*canadensis* and *corpulentus*—are added to those listed by LeConte. Neither of these species seems to be certainly known to American collectors, and notwithstanding the fact that Regimbart's descriptions are very carefully drawn, and evince a nice discrimination in the selection of those characters which a wide experience shows to be most useful, the lack of tables, the scattering of our species among those of the entire world, and the handicap of a foreign language, counterbalance the gains and leave us about where we were before.

I have on several occasions, without much success, endeavored to find out something about our Gyrini by a comparison of my material with LeConte's types, but the present study dates rather definitely from an investigation begun in the summer of 1916. At the end of Dr. LeConte's paper, a footnote states that a portion of a large school of *Gyrinus* collected by Uhler in the Charles River near Cambridge, Massachusetts, contained the following six species: *limbatus, dichrous, confinis, fraternus, picipes* ? (race), *lugens*." The author goes on to remark: "I have observed however at Lake Superior that the species are generally not found intermixed." On the twenty-ninth of August, 1916, while canoeing on Lake Quannipowitt at Wakefield, Massachusetts, I encountered a large school of *Gyrinus*. A good deal of variation in size was obvious, and having in mind LeConte's note, I determined to investigate on my own account. Gyrini are not easy to capture without a net, but with some sort of dipper I managed to secure about fifty specimens, which on sorting carefully seemed separable into about six species. Seeking further possible confirmation I tried the experiment of removing the genitalia[1] for comparison. The results were gratifying in the extreme. Not only were my six supposed species sharply separable by the male genital organ, but one of the six proved to be composite, giving me a seventh species. Subsequent study showed the seven species to be as follows: *ventralis, confinis, lugens, dichrous, pernitidus, rockinghamensis* and *aquiris*. I have on another occasion taken *affinis* at the same place in late August, and have little doubt it was also present though none were secured.

In the late summer of 1917, Mr. C. A. Frost of Framingham, Massachusetts, while on his vacation in southwestern Maine, kindly collected for me a lot of *Gyrinus*. In most instances, Mr. Frost tells me, all specimens bearing same locality and date were associated in the same school. The following records illustrate the point in question.

---

[1] I was not at this time aware that Edwards and Sharp had already used this method of analysis in their study of the British species of *Gyrinus*, and Sharp's excellent paper of 1914 has come to hand only after the practical completion of my own study.

Little Androscoggin River, Paris, Maine, August 25, 1917

lugens, many
affinis, 2 or 3 examples
aeneolus, 1 ♂
fraternus, 2 ♂
bifarius, 1 ♀

Same locality, August 27, 1917

affinis, 7
lugens, many
latilimbus, 3 ♂, 1 ♀
fraternus, 1 ♂
pernitidus, 2 ♂

Lake Wilson, Monmouth, Maine, September 4, 1917

affinis, 6 ♂, 5 ♀
dichrous, 1 ♂, 1 ♀
lugens, 3 ♂, 3 ♀
fraternus ?, 1 ♀.
ventralis, 2 ♂
frosti, many

Lake Cochnewagin, Monmouth, Maine, September 7, 1917

minutus, 3 ♂
lugens, 8 ♂
dichrous, 2 ♂, 5 ♀

In all, eleven species were obtained by Mr. Frost from August 25 to September 7, in a limited area. It will be of interest to add to these a number of records of specimens taken by Mr. J. B. Wallis, on a trip from Winnipeg nearly to Hudson Bay, in the summer of 1917.

Le Pas, Manitoba, June 30, 1917

maculiventris, 1 ♂, 3 ♀
confinis, 5 ♀
minutus, 1 ♂, 1 ♀
pectoralis, 1 ♂
bifarius, 2 ♂, 10 ♀
wallisi, 1 ♂

Piquitenay River, July 6, 1917

maculiventris, 5 ♂, 3 ♀
confinis, many
minutus, 1 ♀
pectoralis, many
wallisi, many
impressicollis, 3 ♂, 3 ♀

Mile 256, Hudson Bay Railway, July 12, 1917

maculiventris, 1 ♂, 1 ♀
minutus, 5 ♂, 3 ♀
pectoralis, 4 ♂
wallisi, 19 ♂, 40 ♀
picipes, 2 ♂, 1 ♀

Kettle Rapids (most northern point reached), July 15, 1917

minutus, 8 ♂, 8 ♀ *confinis*, 21 ♂, 27 ♀
lugens, 2 ♂, 3 ♀ *bifarius*, 8 ♂, 6 ♀
opacus, 16 ♂, 16 ♀

A total of ten species were taken by Mr. Wallis, only three of which (*minutus*, *lugens* and *bifarius*) occurred in the Maine catch.

It is obvious from the above that there is no aversion to association among the different species of *Gyrinus*, in fact any considerable school is more likely to be composite than not. That colonies may consist of a single species is undoubtedly true. Mr. Wallis has sent me two lots taken at Winnipeg and one at St. Norbert, Manitoba, the last named containing one hundred and eight specimens, all of which were *maculiventris*; while from Professor Bradley I have received a series of several thousand specimens taken at Silver Springs, Arkansas, which seems to contain nothing but *analis*.

Throughout the above investigation I have had recourse to the genitalic characters in sorting the material. Once the species have been separated in this way, it becomes possible to evaluate the superficial characters of form, color, sculpture, etc., and the student gradually acquires the ability to identify with considerable accuracy a large majority of the species from these characters alone. This is, however, only possible to the trained eye, and the casual student need expect only a moderate degree of success unless he checks up his conclusions by a study of the male genitalia; in fact there are a few species which I am disposed to believe can never certainly be recognized in any other way. Though it may seem somewhat of a nuisance, the process of removing the genitalia is a very simple one indeed, and with alcoholic or properly softened specimens, unless very old, may usually with very little experience be accomplished with little or no injury to the specimen. The essentials are some form of dissecting microscope—a simple lens of wide field so supported as to leave the hands free answers every purpose—a needle and a pair of forceps, preferably with fine curved points.

The chitinous parts of the male genitalia consist of two broad, flattened, truncate lateral processes called "valves" by Regimbart, and the intermediate oedeagus. Sharp and Muir designate as "lateral lobes" the so-called valves of Regimbart, and the intermediate piece is called the "median lobe," the term oedeagus being used (less accurately perhaps) for the combination. The valves are fimbriate at tip and very similar in all species, and seem to offer no tangible specific characters. The oedeagus on the other hand varies much, and its form, and width as compared with that of the lateral lobes or valves, combined with the most marked superficial features of color, form and sculpture, make it possible to tabulate the species in a fairly satisfactory manner. Females are often very difficult to place except through association with males. The chitinous portion of the female genitalia consists of two elongated plates strikingly similar to the male valves, and like the latter seem to be substantially alike in all species. Males of course may always be known by the dilated and squamose front tarsi. Among superficial characters, the color of the underbody is perhaps of the first importance, but must be used with some caution. In species having normally a pale ventral surface, the color may be much darkened by the method of preservation. An even greater degree of discretion is needed with respect to the color of the epipleura. LeConte long ago grouped the species according as the under side margin of the prothorax and the epipleura are testaceous or metallic black. It frequently happens, however, that in species having normally black pro- and epipleura, these parts are more or less obscurely testaceous in certain lights, and are sometimes so distinctly so as to be quite misleading. Both LeConte and Regimbart have laid considerable stress on the distinctness of the outer apical angle of the elytra. The character is, however, a very elusive one, and can hardly be depended on in any single instance to separate closely allied species. In a few of our species (notably *aeneolus*, *confinis* and *analis*) the entire upper surface is more or less distinctly aeneous, but in the great majority the margins only are bronzed. Occasional specimens occur that are entirely destitute of aeneous luster, and such are likely to be found in a sufficiently long series of any species.

In his paper on the British species of *Gyrinus*, Sharp says:[2] "The species of this genus are liable to a peculiar form of variation, the chitin of the upper surface—more especially of the elytra—becoming more or less dull instead of highly polished, and this dullness is sometimes accompanied by the development of an excessively minute and indefinite sculpture. As sculpture is of considerable importance in discriminating the species of the genus, it is desirable that the student should be prepared to recognize this adventitious roughening of the surface when he meets it." The same abnormal sculpturing has been observed in occasional examples of a considerable number of our species, and it is probable that all are subject to it.

Although many thousand examples of *Gyrinus* have been passed in review in the preparation of the present paper, less effort than usual has been made to obtain material from a wide range of correspondents. Something doubtless would have been gained by so doing; I have, however, seen representatives from most portions of our territory, and I do not anticipate that the number of new species yet to be discovered within our limits will be very great. As already indicated I am especially indebted to Mr. C. A. Frost and Mr. J. B. Wallis for large collections made in Maine, Massachusetts and Manitoba. Prof. J. C. Bradley has sent me practically the entire material in Gyrini of the Cornell University Collection, containing long series taken in the vicinity of Ithaca, and these together with contributions from Messrs. Woodruff, Notman and Davis, have enabled me to determine pretty definitely the character and extent of the Gyrinid fauna of central and eastern New York. From Prof. H. F. Wickham I have received a representative lot of the species taken by him in Iowa, and on his numerous collecting trips in the far west. I am also indebted for specimens to Messrs. A. B. Wolcott of Chicago, F. Waldo Dodge of Melrose Highlands, Massachusetts, Prof. A. P. Morse of Wellesley, Massachusetts, Chas. Dury of Cincinnati, Warren Knaus of McPherson, Kansas, Drs. Blaisdell, Van Dyke and Fenyes of California, and Prof. J. R. Malloch of Urbana, Illinois. Very especial thanks are due to Dr. Gahan and Mr. Arrow of the British Museum of Natural History for sending me for study one of Kirby's two original types of *G. ventralis*, without which it would have been impossible to identify the species. I have also received from them authoritative examples of *corpulentus* Regimbart and *picipes* Aubé.

---

[2] Entomologist's Monthly Magazine, June 1914, p. 130.

The following descriptions will be found very short. The great general similarity of the different species makes it necessary only to select such features as are of most value for comparative purposes, and these taken in conjunction with the extremely important genitalic characters, will as a rule be amply sufficient for definite identification. A more general use of genitalic characters might have been advantageously made in the tabulation of the species, but I have refrained from doing so for obvious reasons. It is recommended, however, that in at least one male of each species these organs be dissected out for comparison with the figures on the plate and for future reference.

The measurements of length given are from the anterior margin of the head to the elytral apex. The measurements given by Le Conte and other of the older authors include the variable visible abdominal apex and are therefore somewhat in excess of these here given.

All types of new species are in the writer's collection.

TABLE OF SPECIES

1. Scutellum with short, fine, basal carina........................... 2

Scutellum completely non-carinate.............................. 3

2. Body beneath rufous, venter usually darker brown or piceous with the anal segment paler; mesosternum distinctly sulcate.. 1. *minutus*

Body beneath nearly uniformly testaceous or rufo-testaceous; mesosternum more feebly or vaguely sulcate........... 2. *rockinghamensis*

3. Body beneath, including the hypomera and epipleura, testaceous or ferruginous.. 4

Body beneath metallic black, the hypomera and epipleura testaceous or rufous.. 18

Body beneath entirely metallic black or virtually so, the sides of the ventral segments rarely (*pugionis*) dull rufous, the epipleura normally showing no more than an obscure rufous tint in certain lights...... 21

4. Eleventh elytral stria relatively remote from the margin, body beneath of nearly uniform tint..................................... 5

Eleventh elytral stria quite close to the margin (a little more distant in *confinis* and especially so in *bifarius*)......................... 9

5. Species of medium size, average length about 5.5 mm., rarely less than 5 mm., reflexed lateral margins wider.............................. 6

Species of small size, average length about 4.5 mm., rarely as great as 5 mm., reflexed lateral margins very narrow.................... 7

6. Apex of middle lobe of eodeagus truncate with a slight projecting angle at middle, lateral angles distinct........................ 3. *ventralis*

Apex of middle lobe of eodeagus broadly angulate at middle, lateral angles rounded.................................... 4. *fraternus*

7. Surface distinctly and nearly uniformly bronzed, form moderately convex.. 5. *aeneolus*

Surface not or only feebly bronzed, form more strongly convex...... 8

8. Surface feebly bronzed, female extremely finely alutaceous; middle lobe of oedeagus about one-half as wide apically as the lateral lobes. 6. *woodruffi*

Surface not bronzed, female not detectably alutaceous; middle lobe of oedeagus distinctly wider apically than the lateral lobes. 7. *marginellus*

9. Size small, average length less than 4.5 mm....................... 10

Size larger, average length greater than 5 mm. (except *elevatus*)...... 11

10. Transverse pronotal impressed line of punctures parallel with and rather close to the front margin; venter brownish piceous except at apex. 8. *dichrous*

Transverse pronotal line of punctures more arcuate laterally and therefore more distant from the front margin; color beneath nearly uniform.................................... 9. *latilimbus*

11. Surface finely alutaceous and minutely punctulate, more noticeably so in the female.. 12

Surface highly polished, and either not at all alutaceous or punctulate, or only visibly so under high power............................ 13

12. Upper surface, except margins, scarcely bronzed; average length a little less than 6 mm.; middle lobe of oedeagus constricted at apical third. 10. *bifarius*

Upper surface more or less bronzed; average length rather greater than 6 mm.; middle lobe of oedeagus without constriction.. 11. *confinis*

13. Color beneath nearly uniform, surface without trace of micro-sculpture in either sex... 14

Color beneath normally darker medially than along the margins.... 16

14. Elytra with a short elevated plica at the outer apical angle. 12. *plicifer*

Elytra without plica at apical angle............................ 15

15. Form broad and strongly convex, average length approaching 6 mm. 13. *pachysomus*

Form narrow, longitudinal profile strongly convex and distinctly gibbous; size much smaller, average length rather less than 5 mm. 14. *elevatus*

16. Species of the Pacific Coast, extending inland to Utah... 15. *consobrinus*
Species of the North Atlantic and Great Lakes region.............. 17

17. Form narrower and size rather smaller; oedeagus rufo-testaceous. 16. *aquiris*
Form broader, size slightly larger; oedeagus dark brown or piceous. 17. *lecontei*

18. Sides of ventral segments rufo-maculate............. 18. *maculiventris*
Sides of ventral segments not rufo-maculate.................... 19

19. Surface in both sexes micro-punctulate and minutely alutaceous. 19. *pleuralis*
Surface in both sexes thickly covered with very fine, short, oblique striolae. 20. *affinis*

20. Basal joint of front tarsi of male narrower than the two following joints, size rarely if ever as great as 7 mm.............................. 21
Basal joint of front tarsi of male as wide as the two following joints; size very large, 7 mm. or more.................................. 31

21. Anterior margin of metasternum emarginate and impressed each side, giving a trilobed outline.............................. 21. *pectoralis*
Anterior margin of metasternum not impresso-emarginate......... 22

22. Strial punctures of elytra much larger at sides than near the suture, the lateral striae canaliculate................................ 23
Strial punctures of elytra less evidently larger laterally, frequently scarcely at all so, lateral striae not or scarcely impressed......... 25

23. Eleventh elytral stria so nearly marginal as to be scarcely visible when viewed from the side; size smaller, less than 5.5 mm..... 22. *parcus*
Eleventh elytral stria less strictly marginal, distinctly visible from the side; size larger, more than 5.5 mm.......................... 24

24. Sides of ventral segments not paler, the anal segment alone sometimes in part rufous or rufescent........................ 23. *borealis*
Sides of ventral segments obscurely and diffusely rufous... 24. *pugionis*

25. Upper surface polished and without or with scarcely detectable micro-sculpture in the male.................................... 26
Upper surface less shining or rather dull, and with more or less evident micro-sculpture in both sexes.............................. 28

26. Strongly convex, surface without trace of alutaceous sculpture in either sex....................................... 25. *pernitidus*
Moderately convex, females perceptibly but as a rule very finely alutaceous.. 27

27. Upper surface without aeneous luster except along the margin.
Form a little narrower, luster rather more strongly shining, middle lobe of oedeagus not laterally compressed apically, the width greater as viewed from above than from the side; Pacific Coast species, extending eastward to Manitoba.......................... 26. *picipes*

Form rather broader, surface luster, especially of the female, less strongly shining; middle lobe of oedeagus laterally compressed apically so that it appears at tip to be wider when viewed from the side than from above. 27. *lugens*

Upper surface distinctly aeneous, anal segment conspicuously rufous; form rather narrow, size smaller.......................... 28. *analis*

28. Tarsal claws yellowish.................................... 29. *opacus*

Tarsal claws piceous.. 29

29. Upper surface distinctly and rather closely micro-punctulate. 30. *wallisi*

Upper surface not appreciably micro-punctulate.................. 30

30. Form moderately gibbous in profile.......................... 31. *frosti*

Form very thick, strongly gibbous........................... 32. *gibber*

31. Sides of thorax and elytra less continuous than usual; first ventral segment shorter, the fifth longer than in other species.. 33. *impressicollis*

1. **Gyrinus minutus** Linnaeus

Small, narrow, moderately convex; above black, sides bronzed, surface throughout strongly reticulato-alutaceous and dull; beneath testaceous or brownish testaceous, the ventral segments except the apical one commonly more or less infuscate; scutellum very finely longitudinally carinate basally; mesosternum distinctly rather deeply sulcate.

Male genitalia. Color brownish apically, paler basally; middle lobe about as wide apically as the lateral lobes, narrowly rounded and minutely notched at tip.

Length, 3.5 to 4.3 mm.; width, 1.8 to 2.3 mm. Average length close to 4 mm.

A common species, occurring throughout Central and Northern Europe and in Siberia. In North America it ranges entirely across the continent from Maine to Alaska.

Specimens at hand are from Monmouth, Maine (Frost); Holderness, New Hampshire (A. P. Morse); Northern Illinois; Onaga, Kansas; Brookings and Volga, South Dakota; Le Pas, Piquitenay River, Mile 256 Hudson Bay Railway, and Kettle Rapids, Manitoba (Wallis); Edmonton, Alberta (Carr); Homer, Alaska (W. S. McAlpine).

The small size and dull surface luster instantly distinguish this well known species from all others of our fauna except the next, which see for a statement of differences. The carina of the scutellum is never very conspicuous, and consists of a very short feeble elevation close to the thoracic margin.

2. **Gyrinus rockinghamensis** LeConte

Very closely allied to *minutus*, and considered by Regimbart and others as only a varietal form of that widely dispersed species. The two seem to be always separable, however, and I am disposed to consider *rockinghamensis* distinct by the following characters.

Size slightly smaller on the average, color beneath entirely pale, mesosternum feebly sulcate, lateral stria of elytra less close to the margin, oedeagus more obtusely rounded and less acutely notched at tip.

Length, 3.4 to 4.3 mm.; width, 1.75 to 2.2 mm. Although the largest and smallest individuals before me are practically identical in size with those of *minutus*, the average length for *rockinghamensis* scarcely exceeds 3.8 mm., while for *minutus* it is about 4 mm.

Type locality.—Rockingham, North Carolina.

This species appears to be confined to the Atlantic Coast region, ranging from Massachusetts to Florida. Specimens before me bear labels, Wakefield, Mass., N. J., and Billy's Island, Okefenokee Swamp, Georgia (J. C. Bradley).

3. **Gyrinus ventralis** Kirby

Of medium size and convexity, highly polished black, often with bluish reflections, sides bronzed; body beneath nearly uniformly rufous or rufo-testaceous; upper surface without noticeable alutaceous sculpture or minute punctulation, except under high power; eleventh elytral stria well up from the margin.

Male genitalia. Color rufo-testaceous like that of the ventral surface; median lobe broader at apex than the lateral lobes, the tip subtruncate with a short median process and well defined lateral angles.

Length, 4.8 to 5.9 mm.; width, 2.5 to 3.2 mm. The great majority of specimens lie between 5 and 5.5 mm.

Type locality.—British America, "latitude 54°."

Specimens have been seen from Maine (Monmouth); Massachusetts (Tyngsboro, Wakefield, Attleboro, Framingham, Monterey); Connecticut (Litchfield); New York (Ithaca, Riverhead, Long Island, Chaumont River); New Jersey (Lake Hopatcong); Michigan (Pontiac); Ontario (Ottawa).

This species is a common one in Massachusetts, and probably throughout the territory from New England to the Upper Lakes. Oddly enough not a single specimen was found in the extensive material collected by Mr. Wallis on his trip from Winnipeg up along the line of the Hudson Bay Railway, although this region is closest to the type locality of any from which I have received Gyrini.

Ventralis has never been recognized with certainty from Kirby's very brief description, which applies about equally well to any one of a half dozen species occurring in the Northern United States and Canada.

Through the courtesy of Messrs. Gahan and Arrow of the British Museum, one of Kirby's two original specimens has been sent me for examination. The specimen is a male, fortunately with the tip of the oedeagus visible, which enables me to fix its identity with absolute certainty. The *ventralis* of LeConte's paper (1868), and of Regimbart's Monograph is not Kirby's species, but proves now to be an undescribed form for which the name *lecontei* is proposed in the present paper.

By the form of the apex of the median lobe of the oedeagus, *ventralis* may be instantly separated from every other species in our fauna; but to determine it from superficial characters alone is difficult or impossible even to the experienced student. The following are the species occupying in part the same territory, with which it may be confused: *lecontei, aquiris, confinis, bifarius* and *fraternus.*

From *lecontei* and *aquiris, ventralis*—if not discolored—may in most cases be distinguished by its practically uniform tint of the pale under surface, the venter being almost invariably darker medially than around the margins in the two species named. *Aquiris* is also of somewhat narrower form, while *lecontei* is a rather larger and slightly more robust species. *Confinis* is slightly narrower, less convex, and with more easily detectable alutaceous sculpture, especially in the female. *Bifarius* is extremely similar to *ventralis,* but when closely compared the lateral eleventh elytral stria is slightly farther from the margin, and, as in *confinis,* the alutaceous sculpture is more evident. So far as I have observed there is no way of separating the present species from *fraternus* except by genitalic characters.

4. **Gyrinus fraternus** Couper

This species was described in 1865 by William Couper of Quebec, who says it is common in ponds near that city in June and July. There are two supposedly typical specimens from

Couper in the LeConte Collection, which the latter author briefly characterizes as a little less elongate (than *confinis*), polished black, not bronzed; punctures of elytral rows stronger and equally densely placed. In his remarks, LeConte reiterates as follows: "Of the same size as *confinis* but a little more robust and easily distinguished by the entire absence of bronzed lustre on the upper surface, even at the suture and margin."

I have carefully examined these two specimens and find them both to be females and of different species. The one bearing the name label (in LeConte's hand) is entirely black above, finely alutaceous toward the apex, without trace of bronze luster, but with the elytra at the tip slightly tinged with rufous as if immature; the specimen is, I think, not perfectly normal. The second example is entirely polished and with a very distinct narrower bronzed margin to the elytra. LeConte's characterization is evidently drawn from the first specimen, but although Couper's description neither affirms nor denies the presence of a bronzed margin, I believe that normal examples will be found to possess it, and that in this respect the second specimen will prove to be more truly representative of his species. It is quite impossible with available data and material to determine just what Couper's species is. He evidently mixed at least two species, possibly more. The first of the two LeConte specimens has the lateral elytral stria more closely marginal and the ventral surface slightly darker medially: it is likely therefore to be an abnormal *aquiris* or *lecontei*. The second LeConte specimen has the lateral elytral stria more remote from the margin and may therefore be *ventralis*, or it may be an example of a very closely allied species which I have provisionally separated from *ventralis* because of a small difference in the male genitalia; the tip of the middle lobe of the oedeagus having the lateral angles rounded instead of distinct as in the true *ventralis* (see figs. 3 and 4 of plate). This form is as likely as any other to be the thing described by Couper and rather than relegate *fraternus* to the limbo of unidentified species I have chosen to use the name for this close ally of *ventralis*. There appear to be no characters other than the genitalic one by which these two species—if such they are—may be separated.

As thus identified *fraternus* is known to me from Paris and Monmouth, Maine (Frost); Hooksett, New Hampshire; Attleboro, Massachusetts, and Riverhead, Long Island, New York (W. T. Davis).

5. **Gyrinus aeneolus** LeConte

Rather narrowly oval, not very convex, typically with the entire upper surface distinctly bronzed, often, however, with the disk feebly bronzed, becoming more evidently so toward the margins; surface polished and without trace of alutaceous sculpture in either sex; lateral rows of punctures slightly larger than the sutural, eleventh stria distant from the margin. Beneath nearly uniformly rufo-testaceous.

Male genitalia. Pale rufous or flavo-testaceous, median lobe parallel sided in about apical fifth, and about one-third as wide as the lateral lobes.

Length, 4.1 to 5.1 mm.; width, 2.15 to 2.7 mm.

Both the upper and lower extremes are represented in a small series from Montreal, Canada. The majority of specimens are near the 4.5 mm. mark.

Type locality.—"Illinois."

There are in the series before me four examples from "C. Ill.," kindly donated by Prof. Malloch of the Illinois State University, which must be from somewhere near the type locality. A single female specimen from Dubois County, Indiana (Blatchley), I have compared with the LeConte type and find it to be practically identical.

Other localities represented are "Penn"; New York (Ithaca, Esopus, Pine Island and Windsor); Maine (Paris); Canada (Montreal).

This species may be rather easily confused with *woodruffi,* but the less convex form and more distinct aeneous luster may serve to separate it. It should be said, however, that the eastern examples of *aeneolus* seem to be less evidently bronzed than the western ones. The genitalia are of the same type, but the middle lobe is perceptibly narrower in *aeneolus.*

6. **Gyrinus woodruffi** new species

Of the same size and closely similar in general appearance to the preceding species, but evidently more convex as viewed in profile and with the upper surface less distinctly to scarcely aeneous. The resemblance to *latilimbus* is also strong, but from this *woodruffi* may be distinguished by the anterior submarginal line of punctures at the sides of the pronotum being closer to the margin, by the more narrowly reflexed side margins of the thorax and elytra, and by the eleventh elytral stria being very plainly more remote from the margin. The sides of the elytra are rather broadly bronzed but less widely so than in *latilimbus,* and much less conspicuously so as a rule.

Male genitalia. Entirely rufo-testaceous in color, the middle lobe parallel in about its apical third, feebly convex dorsally, about half as wide as the lateral lobes, the apex circularly rounded.

Length, 4.15 to 5 mm.; width, 2.15 to 2.75 mm.

Type locality.—Staten Island, New York. Type in the author's collection.

The type (♂) is one of a series sent me by Mr. Lewis B. Woodruff, who took them from Willow Brook, June 14, 1919. With them I place two males from Philadelphia Neck, Pennsylvania, and a single male from Florida, which have identical male genitalia and are doubtless conspecific. In the type series all specimens are very symmetrically convex in profile, the highest point of the arch being at the middle of the length. This is also true of the single Florida specimen, but in the Philadelphia ones the profile is slightly gibbous, the highest point of the arch being a little in advance of the middle. In the females the surface luster is slightly dimmed by a very fine alutaceous sculpture as in *latilimbus,* and the outer elytral striae are just visibly impressed. I have not noticed this latter character in any of the males, nor in either sex of *latilimbus.*

7. **Gyrinus marginellus** new species

Form rather narrow and strongly convex; black, sides not at all bronzed in the few specimens known; surface highly polished, not visibly alutaceous or micro-punctulate in either sex; side margins of thorax and elytra very narrow; strial punctures moderate, slightly stronger in the lateral rows; eleventh stria distant from the margin; body beneath nearly uniformly rufo-ferruginous.

Male genitalia. Rufo-testaceous, middle lobe broad, distinctly wider than the lateral lobes, just visibly widened apically, tip broadly rounded, upper surface carinate, the carina becoming obsolete at tip, which is flattened.

Length, 3.9 to 4.4 mm., width, 2 to 2.35 mm.

Type locality.—Lakehurst, New Jersey (♂). Type in the author's collection.

Described from three examples, one pair (♂, ♀) collected and kindly given me by Mr. W. T. Davis; a second male bears label "Atco N. J. Kemp."

As indicated in the description the three examples of the type series are highly polished, black, without trace of aeneous luster either at suture or margins. It is, however, very doubtful if this will prove constant in a longer series. *Marginellus* is superficially more or less closely similar to four other species of like size, viz—*latilimbus*, *dichrous*, *aeneolus* and *woodruffi*. Of these, *latilimbus* may always be at once distinguished by the transverse row of punctures at the side of the thorax bending more strongly away from the front margin, and by the more widely reflexed side margins of the thorax and elytra. Both *latilimbus* and *dichrous* have the eleventh stria evidently nearer the margin than in the other three species, and *dichrous* differs further in the darker colored ventral segments. *Aeneolus* and *woodruffi* agree nearly with *marginellus* in the very narrowly reflexed side margins of thorax and elytra, and in having the eleventh stria more distant from the margin. In *aeneolus* the entire upper surface is more or less distinctly bronzed. In *woodruffi* there is a faint aeneous luster in some examples at least, and in the female the surface gloss is slightly dimmed by a very fine alutaceous sculpture, not detectable in *marginellus*. These two species, however, may prove difficult to distinguish without reference to genitalic characters.

8. **Gyrinus dichrous** LeConte

Our smallest species with non-carinate scutellum, averaging but little over 4 mm. in length. Above black, sides narrowly and obscurely bronzed, surface moderately shining, less highly polished than in many species but without definable alutaceous sculpture. Punctures of outer rows only slightly larger than those near the suture; eleventh stria rather close to the margin. Beneath rufous, with the ventral surface except the apical segment, dark brown or castaneous.

Male genitalia.—Rufo-testaceous, middle lobe slender and parallel-sided in apical half, scarcely one-third as wide as the lateral lobes.

Length, 3.9 to 4.4 mm.; width, 2.2 to 2.45 mm.

Type locality.—"New England."

My specimens are from Maine (Monmouth—Frost); Massachusetts (Tyngsboro; Wakefield): New York (Chaumont River—Notman): Canada (Ottawa—Beaulne).

The small size, deep black not very highly polished surface, rufous under body with darker ventral segments, except the terminal one, make this an easily recognizable species. Le Conte speaks in one place of this species as being "scarcely bronzed," and in another as "not bronzed on the margin and suture," which I believe to be the case with the type; but with clean specimens and the proper view point the margin will be found in the great majority of specimens to be as stated above. In all species with margins normally bronzed, individuals occur in which there is no trace of metallic luster.

G. fratellus Notman, of which I owe a paratype to the kindness of the describer, is unquestionably identical with *dichrous.*

9. **Gyrinus latilimbus** new species

Size small; black, highly polished, without trace of alutaceous sculpture in the male, very finely alutaceous in the female; sides broadly bronzed in both sexes. Strial punctures of the elytra distinctly coarser laterally, eleventh stria quite near the margin. Anterior impressed line of punctures of the pronotum curving more strongly away from the front margin than in any other related species. Body beneath uniformly rufo-testaceous.

Male genitalia.—Entirely testaceous, median lobe a little narrower apically than the lateral lobes, the tip distinctly angulate.

Length, 4.2 to 4.7 mm.; width, 2.2 to 2.6 mm.

Type locality.—Tyngsboro, Massachusetts. Type (♂) in the author's collection.

The localities represented before me are—Maine (Paris—Frost): New Hampshire (Farmington; Lake of the Clouds, Mt. Washington—Blanchard): Massachusetts (Tyngsboro; Monterey—Frost): Connecticut (Litchfield—Woodruff): New York (Ithaca—Cornell Univ. Coll.): Ontario (Searchmont): British Columbia (J. H. Keen).

This is the species that LeConte assumed to be the *limbatus* of Say, although he admits not having seen any examples from Georgia or Florida, the localities from which Say's types came. The present species is strictly a northern one, and is extremely unlikely to be the true *limbatus,* though what the latter can be is still a mystery. According to Say, *limbatus* closely resembles *analis* but is rufous beneath and the size a little larger. The present species is smaller than *analis.* Superficially, *latilimbus* resembles more or less strongly a number of others, notably *woodruffi* and *aeneolus,* in both of which the eleventh elytral stria is distinctly more distant from the margin, while the transverse series of pronotal punctures is in the present species more distant from the front margin than in the related species. The bronzed margin of the elytra is wider than usual in *latilimbus,* involving the four, or often five, lateral interspaces.

10. **Gyrinus bifarius** new species

Moderately elongate and of average convexity; black, polished, sides widely bronzed, sometimes distinctly, sometimes rather obscurely so. With a strong lens the elytra are seen to be very finely alutaceous and numerously minutely punctulate over the entire surface, a little more noticeably so in the female. The punctures of the outer elytral striae are but little larger than those toward the suture, the eleventh stria well above the margin, nearly as distant therefrom as in *aeneolus* and *woodruffi*. Body beneath nearly uniformly rufo-testaceous or ferruginous.

Male genitalia. Rufo-testaceous, middle lobe constricted in a peculiar manner at its apical third, so as to present the appearance of an elongate superiorly flattened appendix, which is about one-third as wide as the lateral lobes, broadly concave in a longitudinal sense, acuminate at base, and narrowly rounded at tip.

Length, 4.2 to 6.5 mm.; width, 2.35 to 3.6 mm. The extremes are both very exceptional, the great majority of specimens lying between 5 and 6 mm. in length.

Type locality.—Paris, Maine. Type in the author's collection.

The type is a male bearing date 8–29–17 and is one of a miscellaneous lot, including some four or five species, taken by Mr. Frost from the Little Androscoggin River at that place. The following localities are represented in my series—Quebec (St. Denis—Ouillet): Maine (Paris): New York (Ithaca; Waterville—Notman): Michigan (Manistique River, Schoolcraft County, and Huron Mountain Club, Lake Superior—A. W. Andrews): South Dakota (Brookings): Colorado (Glenwood Springs—Fenyes): Manitoba (Le Pas and Kettle Rapids—Wallis): Oregon ("Or"; The Dalles—Wickham): Nevada: California (Bishop—Fenyes; Lassen County—Nunenmacher; Eldorado County; Mokelumne Hill—Blaisdell; Sacramento; Guerneville, Sonoma County—Blaisdell; Athlone, Merced County—Alonzo Davis; Pajaro—Wickham; Bakersfield—J. O. Martin; Riverside).

This is one of our most widely dispersed species, ranging from Maine to California, common enough in collections without doubt, but mixed with one or another of several species which it more or less closely resembles. There is no great difficulty in separating it from any of its closer allies except *confinis*, if one uses a lens strong enough to show up the fine alutaceous sculpture and minute punctulation of the elytra, which is characteristic of normal examples of these two species. *Confinis* is a somewhat larger species on the average, and the eleventh elytral stria is a little nearer the margin than in *bifarius*. These differences are, however, not reliable in all individuals, and the only sure test is the genitalic one.

In a species so widely dispersed as *bifarius*, a considerable amount of variation should be expected; this is especially noticeable in the size, form, luster and distinctness of the fine ground sculpture.

11. **Gyrinus confinis** LeConte

A little larger, slightly narrower and a little less convex than *ventralis*; entire upper surface with a feeble green bronze luster which is a little more pronounced at the margins. There is a very fine alutaceous sculpture and minute scattered punctulation, especially in the female, more easily detectable than in *ventralis*, but still scarcely visible under low power. The lower surface is rufous or rufo-testaceous, sometimes quite uniform in tint, but often with the ventral segments in part darker.

Male genitalia. Uniformly testaceous, median lobe a little narrower than the lateral ones, strongly flattened horizontally and nearly parallel-sided for some distance before the apex, which is rounded or feebly angulate.

Length, 5.7 to 6.7 mm.; width, 2.9 to 3.6 mm.

Type locality.—Lake Superior.

This species is known to me from Massachusetts (Wakefield): New York (Chaumont River, Jefferson County; Waddington, St. Lawrence County; Ausable Point, Clinton County—Notman): Ontario (Ottawa and Hull—Beaulne; Nepigon—Fenyes): Manitoba (Winnipeg; Le Pas; Husavick; Selkirk; Piquitenay River; Kettle Rapids—Wallis): Montana (Missoula).

From the above it will be seen that *confinis* ranges from New England to Montana, occupying nearly the same territory as *ventralis*.

12. **Gyrinus plicifer** LeConte

Form rather broad and thick, approaching in these respects and in general facies the still somewhat stouter *pachysomus* of the Atlantic region. Color above black, the sides broadly bronzed, the surface highly polished and without trace of alutaceous sculpture in either sex. Strial punctures of the elytra distinctly larger laterally than near the suture, the eleventh stria rather close to the margin; outer apical angle of the elytra with a short elevated plica close to the margin. Body beneath brownish red varying to dark castaneous, the epipleura commonly of a brighter rufous tint.

Male genitalia.—Of a rather dark brownish ferruginous tint, the middle lobe very narrowly linear in apical third, not more than about one-sixth as wide as the lateral lobes.

Length, 4.5 to 6.1 mm.; width, 2.5 to 3.5 mm.

Type locality.—San Diego, California.

Known to me also from Pomona, Pasadena, Palm Springs, Kernville and the vicinity of San Francisco (Alameda, Marin and Sonoma Counties) in California: Corvallis, Oregon: Huachuca Mountains, Arizona: Canon City, Colorado: Davis Mountains, western Texas.

This is one of the few species in our fauna possessing a positive unique superficial character in the small plica at the outer apical angle of the elytra, which when once appreciated offers a certain means of identification. It is distinctly more robust than any other species occurring in the region which it occupies.

13. **Gyrinus pachysomus** new species

Broadly oval, very convex, surface highly polished and without trace of alutaceous sculpture in either sex; sides broadly bronzed; punctures of striae near the suture very much finer than at sides; eleventh stria rather close to the margin. Body beneath nearly uniformly reddish brown.

Male genitalia.—Rufous or rufo-testaceous, middle lobe parallel-sided and feebly convex apically, about half as wide as the lateral lobes, the apex evenly rounded.

Length, 5.5 to 6.2 mm.; width, 3.15 to 3.6 mm.

Type locality.—Southern Pines, North Carolina. Type in the author's collection.

The type is a male sent me by Rev. A. H. Manee and bears date V-5-1915. There are also before me specimens from Fredericksburg, Virginia (Richardson), and Mobile, Alabama (Loding).

The rather large size and robust convex form make this one of our most easily recognizable species. *Elevatus* is about equally thick bodied and of the same color beneath, but is a much smaller species.

14. **Gyrinus elevatus** LeConte

Rather small, strongly convex, the point of maximum elevation of the longitudinal profile being slightly in advance of the middle of the length. Above black with sides conspicuously bronzed, surface highly polished and without trace of minute punctulation or alutaceous sculpture in either sex. Strial punctures much finer near the suture than near the margins; eleventh stria almost marginal except for a short distance at middle. Body beneath rufo-testaceous or rufo-brunneous, the metasternum sometimes a little darker in tint.

Male genitalia.—Color rufo-testaceous, middle lobe becoming rather abruptly linear in about apical two-fifths, the linear portion about one-fifth as wide as the lateral lobes.

Length, 4.6 to 5.15 mm.; width, 2.5 to 2.7 mm.

Type locality.—"New York"; from the Harris Collection.

Inasmuch as all other specimens seen by me are from Florida, it is not impossible that there may be an error in the type locality. *Elevatus,* according to Schwarz is common in Florida, and judging from the numerous localities cited by Leng and Mutchler[3] must be generally diffused in the state. St. Augustine, Lake City, Gulf Hammock, Lake Okechobee, Orange County, and Dunedin are among the specific localities mentioned. At the last named place it has been taken by Blatchley, who says he has never seen large colonies, but only from one to half a dozen specimens at a time. Quite possibly this may be due to the season (winter and spring) at which collecting was done.

There are very few species with which *elevatus* is likely to be confused, *woodruffi* alone of the species of somewhat similar size and rufous ventral surface approaching it in convexity of form. In *woodruffi,* which is really a smaller species, the eleventh elytral stria is distinctly more distant from the margin.

There is a distinct possibility that the present species may be the true *limbatus* of Say, which was described from Georgia and East Florida; Say, however, indicates by his measurements a species slightly larger than *analis,* which is not true of *elevatus* except when its largest individuals are compared with the smallest of *analis.*

15. **Gyrinus consobrinus** LeConte

Of the same medium size, moderate convexity, highly polished surface luster, and color, as in *aquiris,* from which I know of no means of separating it except by genitalic characters, and even these are strikingly similar, the median lobe of the oedeagus being in *consobrinus* a little less than half as wide apically as the lateral lobes, while in *aquiris* the width is as nearly as may be one-half of the lateral lobes. If on the study of a larger number of specimens it should be found that this difference is not constant, the two may have to be united under the older name—*consobrinus*. At present, one has only to look at the locality label to distinguish them.

---

[3] Bull. Amer. Mus. Nat. Hist., XXXVIII, p. 97, 1918.

Male genitalia.—The same as in *aquiris*, except as noted above.

Length, 4.9 to 5.7 mm.; width, 2.6 to 3.15 mm.

Type locality.—San Francisco, California.

The following localities are represented in my series: Shasta Retreat and Dunsmuir in Siskiyou County (Blaisdell), Napa, Bear Lake (6000 ft., San Bernardino County—Martin), all in California. Provo and Salt Lake City, Utah.

16. **Gyrinus aquiris** LeConte

Of moderate size and convexity, form rather narrow, black above with slight bluish reflections, sides moderately bronzed, surface strongly polished in the male with very minute scattered punctures, visible only with a one-fourth inch triplet; nearly as shining in the female, with an extremely fine alutaceous sculpture detectable posteriorly, and with similar but rather more numerous minute punctures than in the male. Strial punctures only slightly larger in the lateral rows, eleventh stria almost strictly marginal. Body beneath reddish brown with the median areas, especially of the abdomen, darker.

Male genitalia.—Rufo-testaceous, often a little darker in tint basally; median lobe apically about half as wide as the lateral lobes, obtusely carinate above apically, with the tip subacutely rounded.

Length, 4.9 to 5.9 mm.; width, 2.55 to 3.15 mm.

Type locality.—"Middle States." The type bears a pink disk locality label and is probably from Pennsylvania.

The following localities are known to me—Canada (Montreal): Massachusetts (Tyngsboro; Wakefield; Sherborn (Frost): New York (Ithaca; Ausable Point; Crown Point; Chaumont River; Tivoli—Notman; Staten Island—Davis): Wisconsin (Beaver Dam; "Wis.").

The characters of critical value in identifying the present species are the brownish or reddish brown ventral surface becoming diffusely paler at the margins, and the eleventh elytral stria very close to the margin. Two other species—*lecontei* and *consobrinus* share the same characters. *Lecontei* inhabits substantially the same region as *aquiris* and is therefore most likely to be confused with it. When series are compared *aquiris* is quite readily seen to be of more elongate form; the character is, however, a little difficult to apply with a single individual or only a few specimens at hand. The male genitalia are quite distinct in the two species, and if the mere tip of the oedeagus is exposed, the difference in color—brownish piceous in *lecontei* and rufo-testaceous in *aquiris*—will at once settle the question. *Consobrinus* is even closer to *aquiris*, and I am quite convinced that there are no superficial characters by which they may be certainly distinguished; *consobrinus*, however, is a Pacific Coast species extending its range eastward to Utah, and I do not know that their ranges overlap at any point.

17. **Gyrinus lecontei** new species

Rather broadly oval, moderately convex, black with bluish reflections, sides conspicuously green bronzed; surface highly polished, with an excessively fine alutaceous sculpture and sparse extremely minute punctulation, barely detectable with a one-fourth inch triplet; strial punctures only very slightly coarser at sides, eleventh stria quite close to the margin. Beneath brownish ferruginous with diffusely paler margins.

Male genitalia.—Piceous brown, becoming paler basally; median lobe gradually acuminate from base to tip, the apex superiorly carinate (roof shaped).

Length, 5.2 to 6.2 mm.; width, 2.85 to 3.4 mm.

Type locality.—Sherborn, Massachusetts. The type is a male collected and given me by Mr. C. A. Frost and bears date XI-18-17.

This is the species which LeConte supposed to be the *ventralis* of Kirby. It occurs commonly in the region extending from New England to the Great Lakes. The following localities are known to me.

Maine (Monmouth and Paris): New Hampshire (Farmington; Starr Lake, Mount Washington): Massachusetts (Sherborn; Framingham; Natick; Wellesley; Swampscott; Tyngsboro): New York (Ithaca; Keene Valley; Westfield): Michigan (Agricultural College—H. E. Weed): Illinois (Chicago; "N. Ill."): Wisconsin: Ontario (Toronto).

In the color of the lower surface this species agrees closely with *aquiris* and *consobrinus*, and is especially likely to be confounded with the former, which occurs in the same region. *Aquiris* is of somewhat narrower form and averages a little smaller than *lecontei*, but recourse to the genitalia is necessary for certainty in separation.

18. **Gyrinus maculiventris** LeConte

Form rather elongate, moderately convex, above black, highly polished, sides of elytra green bronzed, alutaceous sculpture only detectable under high power. Punctured striae not impressed, the outer ones a little coarser, the eleventh close to the margin. Body beneath black bronzed, pro- and epipleura and sides of ventral segments rufous.

Male genitalia.—Color dark brown to brownish testaceous; middle lobe with tip narrow, tip laterally compressed so as to be vertical in plane.

Length, 5 to 6.4 mm.; width, 2.5 to 3.25 mm.

Type locality.—Lake Superior.

Known to me from New Jersey (Lake Hopatcong): Michigan (Huron Mountain Club): Illinois ("N. Ill."): Iowa (Elma—Wickham): Minnesota (Duluth): South Dakota (Brookings and Volga): Manitoba (Winnipeg; Aweme; Husavick; St. Norbert; Le Pas; Mile 256, Hudson Bay Railway; Piquitenay River): Alberta (Edmonton).

A northern species of moderately large size and rather narrow form, at once recognizable by the bright rufous sides of the ventral segments contrasting sharply with the dark median area. The species seems to be very abundant north of Lake Superior and in Manitoba.

19. **Gyrinus pleuralis** new species

Size large, form moderate, rather flatly arched in profile; black, sometimes slightly aeneous, highly polished, sides evidently but not very conspicuously green bronzed; entire surface of elytra rather thickly micro-punctulate and minutely alutaceous in both sexes, the sculpture better defined toward the apex, becoming barely visible at base; strial punctures fine, a little stronger in the outer rows. Trunk beneath metallic black, anal segment more or less rufescent apically as a rule; hypomera and epipleura varying from clear rufous to rufo-piceous.

Male genitalia.—Brownish piceous; middle lobe gradually decreasing in width from base to the narrowly rounded tip, the upper surface carinate in more than apical half. At a distance from the tip equal to the apical width of the lateral lobes, the middle lobe is one-half as wide as the latter.

Length, 6.2 to 7 mm.; width, 3.3 to 3.75 mm.

Type locality.—Laramie, Wyoming. The type, in the author's collection, is a male collected by Prof. Wickham. Paratypes are in his collection.

The following additional localities are represented in the small series at hand. Gunnison, Colorado (Fenyes): Lethbridge, Alberta (Wallis): Washington State ("W. T."): Tuolumne County, California.

This species, by its metallic black under-body, with thoracic flanks and epipleura rufous, agrees with *affinis*, and as in *affinis* individuals occur in which the epipleura are so dark as to be quite deceptive. The average size is at least as great as in *affinis*, but the form is less broad, and the punctulate rather than striolate upper surface will at once distinguish it.

20. **Gyrinus affinis** Aubé

Form broadly oval and only moderately convex, shining black with faint bluish reflections, sides rather narrowly bronzed; surface without evident alutaceous sculpture, but covered throughout with a system of short, very fine, more or less oblique scratches, not differing in the sexes. Outer strial punctures only slightly coarser, eleventh stria quite near the margin. Body beneath metallic black, pronotal hypomera, epipleura and anal ventral segment more or less distinctly rufous.

Male genitalia.—Dull rufo-testaceous, the median lobe brownish at apex. Median lobe very slender (linear) in about apical third, thence gradually widened to base.

Length, 5.6 to 7 mm.; width, 3.15 to 4 mm.

Type locality.—"United States."

A very common and widely dispersed northern species, known to me from Maine (Paris; Monmouth): New Hampshire (Farmington): Massachusetts (Wakefield; Natick; Monterey): Connecticut (Litchfield): New York (Keene Valley; Mount Marcy): Quebec (Hull): Michigan (Pontiac; Alger County): Alberta (Edmonton): British Columbia (McBride): Washington (Olympia): Oregon: California (Dunsmuir; Lake Tahoe; Huntington Lake, Fresno County, 7000 ft.—Blaisdell).

It is not entirely certain that this is the true *affinis* of Aubé, but it is the species so identified by LeConte, and we have no other which so well fits Aubé's description. Of a certainty, no North American *Gyrinus* is more likely to have found its way into European collections than this large, widely dispersed and generally abundant species. Undoubtedly this is the *canadensis* of Regimbart, who compares it with *affinis*, with which he says it is generally confused. Aubé says of *affinis*—"male very finely reticulate, female smooth." Regimbart says of *affinis* that both male and female are finely but strongly punctulate, and that the female in addition possesses an extremely fine reticulation in the form of oblique elongated areolae. Of his *canadensis* Regimbart says, that in both sexes the elytra are covered with very distinct transversely oblique striolae but without reticulation, which perfectly defines the species we are considering. As for Aubé's statement, we have no known species of *Gyrinus* with reticulate males and smooth females, and are forced to conclude that either his male was abnormal or his supposed sexes were of different species. Regimbart's characterization of *affinis* does not at all agree with Aubé's as to surface sculpture, and as he seems in no instance to have seen Aubé's types, it is likely that his *affinis* is not that of Aubé. The matter is thus somewhat involved, and it looks as though actual study of types will be needed to straighten it out. Meanwhile I think it best to follow LeConte in using the name *affinis* for our species with the fine oblique striolation, a character which distinguishes it from every other species of our fauna. In size, *affinis* is only equalled or exceeded by *pleuralis* and the rare *impressicollis*. The color of the epipleura is typically rufous, but specimens often occur with the color so obscure as to seem black at first glance.

21. **Gyrinus pectoralis** LeConte

This species is at once separable from all others of our fauna by the anterior margin of the metasternum being emarginate and impressed each side, giving a trilobed outline. The species has no other salient characters. It is of average size, broadish oval form and moderate convexity; black, margins usually narrowly and feebly bronzed, but often not at all so; surface polished and without definable alutaceous sculpture in either sex, but with numerous very minute dispersed punctures; strial punctures moderate, not or scarcely larger in the outer rows. Beneath, metallic black, the anal segment concolorous or at most slightly brownish; legs dull rufous, the posterior thighs often slightly dusky.

Male genitalia.—Brownish piceous, paler basally; middle lobe gradually narrowed, about half as wide as the lateral lobes at a distance from the tip equal to the width of the latter, obtusely carinate above apically, the tip narrowly rounded.

Length, 4.3 to 5.6 mm.; width, 2.4 to 3 mm. The lower limit is that of an exceptionally small example, the greater number of specimens being 5 mm., or a little more in length.

Type locality.—Lake Superior. LeConte also gives Hudson Bay region.

The species is strictly a northern one; it is known to me from Manitoba (Winnipeg; Onah; Piquitenay River; Mile 256, Hudson Bay Railroad—Wallis): Alberta (Edmonton—Carr): Montana (Missoula—A. B. Wolcott): Washington (Olympia—Kincaid).

22. **Gyrinus parcus** Say

Form strongly convex, nearly symmetrically arched in profile; black, sides distinctly and rather broadly bronzed, surface in the male polished and not visibly alutaceous, in the female very finely alutaceous and moderately shining, the micro-sculpture more evident toward the sides and apex; strial punctures rather coarse, especially toward the sides, where the rows are visibly impressed; eleventh stria strictly marginal throughout. Body beneath metallic black, anal segment not or only feebly rufescent, legs rufous.

Male genitalia. Dark rufous or rufo-piceous, middle lobe obtusely carinate, one-half as wide apically as the lateral lobes, the tip rounded.

Length, 4.25 to 5.3 mm.; width, 2.4 to 2.8 mm.

Type locality.—Mexico.

Known to me from Western Pennsylvania (Jeannette—Klages): Kansas (Onaga; Douglas County; "Kansas Williston"—Snow): Texas (San Antonio; Brownsville; Davis Mountains): California (San Diego—Blaisdell). It also occurs through Mexico and Guatemala to Peru and Chile—a most extraordinary range in latitude.

The rather small size, very convex form, coarse strial punctures with slightly canaliculate lateral rows, are the superficial characters usually relied upon to distinguish this species. To these it should be added that the eleventh stria is so truly marginal throughout as to be scarcely visible when the insect is viewed in the plane of the reflexed margin. This condition does not obtain so perfectly in any of our other species. In *borealis* and *pugionis* only, are the lateral striae of the elytra as distinctly impressed, and both these species are materially larger and practically outside the range of *parcus* so far as we now know.

23. **Gyrinus borealis** Aubé

Form rather stout and convex; black, sides bronzed; moderately shining, elytra very minutely alutaceous throughout, a little more distinctly so in the female, minute punctulation nearly wanting; strial punctures close set, obviously larger at sides, where the striae are very distinctly impressed. Beneath black, last segment commonly brown, at least in part; legs clear rufous.

Male genitalia.—Brownish yellow, middle lobe strongly narrowing, superiorly flattened in basal third, carinate in middle third, slender and subcylindrical in about the apical third, which is about one-fourth as wide as the lateral lobes.

Length, 5.5 to 6.2 mm.; width, 3 to 3.6 mm.

Type locality.—Not stated.

This seems to be a rather scarce species, and only a few scattering specimens have come to hand. These bear the following locality labels: Sherborn and South Framingham, Massachusetts (Frost): Wellesley, Mass. (Morse): Amherst, Mass. (Cornell Univ. Coll.): Lahaway, New Jersey (Davis): Ramsey, N. J. (Sleight): Fredericksburg, Virginia (Richardson).

I have followed LeConte in his interpretation of this species, but am by no means sure that it is the true *borealis* of Aubé. Its most notable superficial character—the rather strongly impressed lateral striae is not mentioned by Aube: in fact he uses the expression "interstitiis planis." On the other hand, Regimbart's description of *borealis* seems to fit our species exactly, possibly because he describes from specimens sent by LeConte. The *corpulentus* of Regimbart appears to be virtually identical, except that he describes the epipleura as ferruginous. As in several of my specimens of *borealis* the epipleura are more or less aeneo-rufescent, I suspect that *corpulentus* is no more than a variety of this sort. Superficially *borealis* is scarcely distinguishable from the following species, which see for a comparative statement.

Since writing the above I have received from the British Museum Collection a "type" of Regimbart's *corpulentus*, and find it to be exactly the *borealis* of LeConte.

24. **Gyrinus pugionis** new species

In form, size, sculpture and luster this species is practically indistinguishable from *borealis*, the only noticeable difference that I have discovered being that here the sides of the ventral segments are narrowly rufous or rufescent, somewhat as in *maculiventris*, but more narrowly and diffusely so. The epipleura, as in *borealis*, are at times somewhat rufescent, but perhaps rather less markedly so.

Male genitalia.—Of same type as in *borealis*, color rufo-testaceous, terminal linear portion extremely slender, hardly more than one-sixth as wide as the lateral lobes, and twice as long as the width of either of the latter.

Length, 5.8 to 6.3 mm.; width, 2.95 to 3.5 mm.

Type locality.—Saugus, Massachusetts. Type (♂) in the author's collection.

This species seems quite as scarce as the preceding, and I have before me only six examples, as follows: Maine (Bar Harbor, ♂ ♀, collected VII-29 by C. W. Johnson): New Hampshire (Holderness, 1♂, Prof. A. P. Morse): Massachusetts (Saugus, 1 ♂—type, 1 ♀ from Bridgewater, both from collection of F. Waldo Dodge): New York (Chaumont River, Jefferson County), IX-21-19, 1 ♂—Notman).

So far as seen, this species is separable with certainty from *borealis*—the only one which it strongly resembles—by the paler lateral margins of the ventral segments, but if this should fail the genitalic characters offer a definite means of identification.

25. **Gyrinus pernitidus** LeConte

Of somewhat less than medium size, form rather strongly convex. Above black, sides usually bronzed, surface highly polished and without visible micro-sculpture in either sex. Punctures moderate, those of the lateral rows a little larger. Body beneath metallic black, last ventral typically and usually more or less rufous, epipleura and hypomera sometimes faintly rufous.

Male genitalia.—Reddish brown, median lobe slightly dilated apically, where it is fully three-fourths as wide as the lateral lobes; angulate at tip, upper surface a little concave apically and with a median carina which does not attain the apex.

Length, 4.9 to 5.2 mm.; width, 2.6 to 2.9 mm.

Type locality.—Georgia. Described from a single female, with which LeConte unites a Massachusetts female from Dr. Harris.

This species is probably not rare from Maine to New Jersey, but is usually mixed with other species in collections. It is known to me from Paris, Maine: Farmington and Hooksett, New Hampshire: Wakefield, Tyngsboro and Sudbury, Massachusetts: Chatsworth and Atco, New Jersey: Indiana (*piceolus* Blatchley).

In a fairly good series, *pernitidus* shows rather less variation in size than usual, the great majority of specimens running pretty close to 5 mm. in length. LeConte gives a length of 6 mm. in his description, but his type really measures 5.7 mm. to the tip of the elytra, the largest example I have seen.

The species seems quite constant in its other characters, about the only variation worthy of notice being in the color of the anal segment and of the epipleura, the latter being not rarely slightly rufescent at base, and occasionally more completely so. I believe that *piceolus* Blatchley is merely an extreme variant of this sort, as it shows no other distinguishing characters. *Pernitidus* should not be difficult to recognize among the species of its own region with black under-body. It is perhaps most likely to be confounded with *analis*, but the latter is a narrower, less convex and more aeneous species, and neither it nor any other species with black under surface occurring in the Atlantic region is completely devoid of alutaceous sculpture in both sexes, as is virtually the case with *pernitidus*.

26. **Gyrinus picipes** Aubé

Of average size and moderate convexity; highly polished black with sides distinctly bronzed. Some specimens appear to be absolutely smooth, others show an extremely fine alutaceous sculpture, barely or scarcely detectable except towards the apex; there is also present or not an excessively minute punctulation which is of variable visibility. Strial punctures very fine near the suture, evidently larger at sides. Body beneath metallic black, the epipleura frequently tinged with rufous; anal segment more or less rufous or rufescent.

Male genitalia. Brown or piceous brown; middle lobe about one-third as wide as the lateral lobes apically, upper surface flattened before the apex and with a very minute obtuse prominence at the extreme tip.

Length.—4.7 to 6 mm.; width, 2.6 to 3.2 mm.

Type locality.—Norfolk Sound.

I have seen examples from the following localities: Alaska (Sitka—LeConte Coll.; Homer): British Columbia (McBride and Cawston): Washington (Port Townsend and Olympia): California (Humboldt County; Alhambra Valley, Contra Costa County; Crystal Springs, San Mateo County; Kernville; Mt. Kaiser, 9000 ft., Fresno County); Alberta (Banff): Manitoba (Mile 256, Hudson Bay Railway): Montana (Missoula).

In the Pacific district, from British Columbia south, there is no other species with which this need be confused, but in the more northern and eastern parts of its range the more shining examples of *opacus* and *lugens* somewhat resemble it, though normally, or in series, these are both much more evidently alutaceous, and the strial punctures of the outer rows are scarcely larger than of those nearer the suture.

In his remarks upon *picipes* in his paper of 1868, LeConte alludes to "types from Alaska kindly sent me by Baron Chaudoir and Count Mnizech." These agree completely with Aubé's description, and may, I think, be safely accepted as authentic. Notwithstanding the name, the legs are ferruginous in color, precisely as called for by the description.

The Labrador examples which LeConte refers here, as well as the Lake Superior specimens which he designates as a race of the present species, are all *opacus* Sahlberg.

27. **Gyrinus lugens** LeConte

Form rather broad, though somewhat variable; moderately nearly symmetrically convex; black, sides more or less bronzed; rather strongly shining but with a fine reticulato-alutaceous sculpture which is a little more evident in the female; minute punctulation sparse or nearly wanting in the male, generally more detectable in the female. Strial punctures moderate, not very noticeably larger in the outer rows, which are not appreciably impressed. Beneath metallic black, legs rufous, anal segment often more or less so, but frequently nearly or quite concolorous.

Male genitalia.—Piceous, middle lobe laterally compressed apically where it becomes very narrow from a vertical view point, but appreciably wider as seen from the side.

Length, 5.15 to 6.7 mm.; width, 2.7 to 3.6 mm.

Type locality—Massachusetts.

This is undoubtedly the commonest and most generally diffused *Gyrinus* in New England, and appears to be fairly abundant throughout the greater part of its range, which extends westward to Manitoba. I have not seen it from farther south than New Jersey and Pennsylvania. The following specific localities have been noted: Little River, Southwest Newfoundland (Bolster), 1 ♀, identity tolerably certain: Maine (Paris; Monmouth; Wales; East Machias; Mount Desert): New Hampshire (Starr Lake, Mt. Washington; Farmington): Massachusetts (Tyngsboro; Wakefield; Framingham; Wellesley; Sherborn; Dartmouth; Monterey; Nantucket): Connecticut (Litchfield): New York (Staten Island; Riverhead, Long Island; Westchester County; Ithaca; Keene Valley, Mount Marcy; Crown Point—Notman): New Jersey (Ramsay; Woodbury; Clementon; Atco): Pennsylvania: Michigan (Manistique; Huron Mountain Club): Ontario (Ottawa; Hull; Searchmont): Manitoba (Piquitenay River; Kettle Rapids).

LeConte says of this species "not at all bronzed above" This is only true of exceptional specimens and does not even quite apply to his type, which has one side margin feebly narrowly bronzed, the other not at all so. In the general run of specimens the suture and side margins are bronzed in much the usual manner, sometimes obscurely, sometimes distinctly so. A little experience, with careful attention to the tabular characters will probably enable the student to recognize *lugens* without great difficulty, but the genitalic character is the only sure test. Only one other species of our fauna—*maculiventris*—has the oedeagus laterally compressed at tip. A similar structure exists in specimens of the European *marinus* sent me by Reitter, but this species so far as I know does not occur in this country. Its presence on our lists is due to the long persistent confusion of *opacus* Sahlberg with *marinus* Gyllenhall by European coleopterists, notwithstanding the fact that this error has been pointed out a number of times. For light on this matter see Sharp's essay on the British species of *Gyrinus*.[4] *G. falli* Notman[5] does not differ from *lugens*.

28. **Gýrinus analis** Say

Somewhat under medium size, form rather narrow and of medium convexity; upper surface uniformly bronzed, only slightly more strongly so narrowly along the margins. Male quite strongly shining and with barely detectable alutaceous sculpture toward the elytral apex; female less shining, the alutaceous sculpture visible throughout. Strial punctures not or only just perceptibly larger externally. Body beneath black bronzed, legs and anal segment ferruginous.

Male genitalia.—Reddish or yellowish brown, median lobe narrowing to about the apical two-fifths, thence subparallel and less than half as wide as the lateral lobes, the upper surface obtusely ridged, the tip narrowly rounded.

Length, 4.5 to 5.5 mm.; width, 2.5 to 3 mm.

Type locality.—Not stated, but probably Pennsylvania.

One of our most widely dispersed species, occurring from Nova Scotia to Kansas and south to Georgia and Louisiana. The following localities are represented in my series. Nova Scotia (Kempf Shore): Ontario: New York (Ithaca): Pennsylvania (Philadelphia and vicinity): North Carolina (Southern Pines): Georgia (Billy's Island, Okefenokee Swamp—Bradley): Alabama (Mobile; Whistler): Florida ("S. R."—J. Corse): Louisiana (Winnfield): Arkansas (Silver Springs): Indiana (Millers): Illinois (Chicago); Michigan (Berrien County; Walnut Lake—Andrews): Wisconsin (Beaver Dam): Iowa (Iowa City; Muscatine—Wickham): Kansas (Reno County; Douglas County).

---

[4] Entom. Monthly Mag., (2), xxv, pp. 128-138, pls. ix-x, June 1914.

[5] Bull. Brooklyn Ent. Soc., XIV, p. 131, (1919).

This species is less difficult to identify by superficial characters than many others, the smallish size, rather narrow form, uniformly bronzed surface, the female evidently though very finely alutaceous, the male scarcely visibly so, the rufous anal segment, forming a combination of characters which fits nothing else. It seems to be especially abundant in the more southern part of its range. Regimbart mentions receiving a small flask of alcoholic material from Missouri, among which were three thousand examples of this species, from which he concludes quite naturally that it must be "prodigiously common." I have myself received from Prof. Bradley two vials of specimens from Silver Springs, Arkansas, containing probably two thousand examples, all of which appear to be *analis*.

29. **Gyrinus opacus** Sahlberg

Of medium size, not very convex; black, sides more or less evidently bronzed, usually rather obscurely so; luster rather dull, owing to the very fine alutaceous sculpture; there is also a very minute scattered punctulation which is somewhat variable in development; strial punctures rather fine and only a little larger laterally. Body beneath black, front legs dark rufous, their tibiae and tarsi tinged with piceous; middle and hind legs piceo-rufous, the tarsal claws yellowish.

Male genitalia.—Piceous or brunneo-piceous; middle lobe gradually narrowed from base to apex, carinate above, about four-fifths as wide apically as the lateral lobes, the tip angulate or subangulate.

Length, 4.8 to 6.2 mm.; width, 2.5 to 3.3 mm.

This species ranges entirely across the continent from Labrador to Alaska. Specimens are before me from West St. Modest, Labrador (Sherman Coll.): Cochrane, Northern Ontario (Notman—listed as *picipes*[6]): Kettle Rapids, Manitoba (Wallis): Edmonton, Alberta (Carr): Pigeon Cove, Alaska Peninsula (Kusche—sent by Van Dyke). The European distribution as given by Sharp, is "arctic Norway and Lapland southwards to the Highlands of Scotland." It occurs also in Iceland and Greenland.

This is the only species in our fauna with legs so dark as to merit the name *picipes*, and as remarked by Blanchard in the letter quoted by Mr. Sherman in his Labrador List,[7] it seems as though it ought to be the *picipes* of Aubé, but whatever may have been the color of the feet in the original specimens that Dejean catalogued under the name *picipes*, Aubé in his description specifically states that the feet are ferruginous.

---

[6] Journ. N. Y. Ent. Soc., XXVII, p. 92, (1919).

[7] Journ. N. Y. Ent. Soc., XXVIII, p. 188, (1910).

There are in the LeConte collection three authentic examples of *opacus* from Greenland, and these differ in no respect from our Labrador ones. Specimens from the interior of the continent (Northern Ontario, Manitoba, Alberta) are, as a rule, distinctly smoother and more shining, and except for their darker legs are very similar to *lugens*, which occurs in the same region. The tarsal claws in *lugens* are, as in *opacus*, yellowish or pale rufous.

The confusion of *opacus* with the *marinus* of Gyllenhall is due, as explained by Sharp, to Suffrian's misinterpretation of Sahlberg's species, an error which persisted until detected by Seidlitz in 1887, and Regimbart in 1891.

I have seen no genuine American examples of *marinus* and very much doubt its occurrence with us, although Regimbart continued to record it in one or another of his Supplements as from "the United States," "North America," "Greenland," and "Hudson Bay."

30. **Gyrinus wallisi** new species

Form rather broadly oval, more depressed than usual; black, sides narrowly and obscurely bronzed; surface luster rather dull, owing to an extremely fine alutaceous sculpture and a rather dense minute punctulation covering the entire surface of the elytra. The elytral striae, especially in the females, show a tendency to become feebly impressed, more distinctly so toward the apex where the surface is notably uneven; strial punctures not or scarcely larger laterally. Body beneath metallic black, anal segment concolorous or nearly so; legs rufous, middle and hind femora more or less dusky; tarsal claws dark brown or piceous.

Male genitalia.—Piceous; middle lobe gradually narrowed to apex, where it is less than half as wide as the lateral lobes, flattened above at tip, which is narrowly rounded.

Length, 5.2 to 6.8 mm.; width, 2.85 to 3.6 mm.

Type locality.—Piquitenay River, Manitoba—Type ♂, in the author's collection.

The type series contains specimens also from Le Pas and Mile 256, Hudson Bay Railway, all collected and sent me by Mr. J. B. Wallis of Winnipeg, to whom it is a pleasure to dedicate the species, in recognition of his enthusiastic and successful quest of the Gyrini of his region.

The rather dull luster and surface sculpture of this species is more remindful of *opacus* than of any other, but the rather broader and slightly flatter form, together with the dark claws should distinguish it without much difficulty. In range, *wallisi* is thus far one of our most restricted species, having been taken only along the line of the Hudson Bay Railway, in the flat marshy lake region between Lake Winnipeg and Hudson Bay. How far to the east or west it may yet be found is problematical, but it has not yet been taken by Carr at Edmonton, nor did Notman find it at Cochrane, North Ontario.

Since the above was written I have seen an example in the Cornell University collection labelled "Ontario Can."

31. **Gyrinus frosti** new species

Broadly oval, moderately convex, distinctly gibbous in profile, the highest point of the arch being well up toward the base of the elytra; black, sides rather narrowly and feebly bronzed, surface luster only moderate, being dulled in both sexes by the very fine alutaceous ground sculpture; strial punctures rather fine, only slightly larger in the lateral rows. Beneath metallic black, anal segment often more or less rufous or rufo-piceous; legs rufous, the middle and hind thighs sometimes a little dusky at base.

Male genitalia.—Dull rufous, the middle lobe more or less dusky apically; middle lobe broad, arcuately expanded and superiorly concave (spatuliform) apically, where its width is subequal to that of the lateral lobes; tip either broadly rounded or subangulate.

Length, 4.8 to 6.3 mm.; width, 2.7 to 3.6 mm.

Type locality.—Monmouth, Maine (Lake Wilson). The type is a male, collected and given me by Mr. C. A. Frost, and bears date "IX-4-17."

The following localities are represented in my series: Maine (Monmouth): Massachusetts (Natick; Monterey—Frost): Connecticut (Litchfield—Woodruff): New Jersey (Clementon; Lake Hopatcong): New York (Ithaca): Pennsylvania (Philadelphia Neck): Louisiana (Winnfield—G. R. Pilate).

A single pair of specimens from Louisiana has been seen: the male is normal in every way, the female, however, is distinctly bronzed over the entire surface.

With a little experience this very distinct species may usually be recognized by its rather broad form, distinctly gibbous in profile, and the relatively dull surface luster: the male genitalia are unique. There is a bare possibility that this species may be the *gibber* of LeConte, represented solely by the unique type; the gibbosity in the latter is, however, still more pronounced, the general form more convex, the cross section distinctly angulate at the suture.

32. **Gyrinus gibber** LeConte

The unique female specimen described by LeConte under this name in 1868 seems never to have been duplicated. The name is strikingly suggested by the bodily form, which is quite strongly gibbous in longitudinal profile, and is distinctly angulate at suture in transverse section. The type is of broadly oval form, the side margins widely reflexed, the surface only moderately shining, reticulato-alutaceous but without or nearly without fine punctulation; punctures of lateral striae not coarser. Body beneath metallic black, last segment dark brown, legs ferruginous.

Length, 5 mm.; width, 2.9 mm.

Type locality.—North Carolina (Zimmerman).

Although rather extreme in its degree of gibbosity of outline, there is nothing besides this singularity to suggest malformation, and I am by no means ready to pronounce the specimen a freak, as has been done by Horn, in his "Notes from the Museum at Cambridge"[8] where he declares it to be "simply a deformity of *analis*." Whether an abnormal individual or not, there is certainly nothing whatever to connect it with *analis*, and if it is to be assigned to any of the species here recognized, it is that to which I have given the name *frosti*. If the thick humped form of *gibber* is really an abnormality, then it is quite likely that *frosti* is the normal form; but with our present meager knowledge of the Gyrind fauna of North Carolina, it is unwise to make such assumption.

33. **Gyrinus impressicollis** Kirby

Broadly oval, moderately convex, side margins wide, outline less continuous than usual, there being a distinct but very obtuse angle at the junction of the prothorax and elytra. Above black, surface throughout slightly aenescent, a little more distinctly so at lateral margins. Surface in female distinctly reticulato-alutaceous and dull, minute punctulation nearly lacking; male more finely alutaceous, more shining, and with an evident minute punctulation. Strial punctures fine, not metallic, scarcely coarser laterally, occupying at sides distinctly impressed grooves, which become very feeble near the suture. Body beneath metallic black, anal segment concolorous; legs rufous, a faint dusky diffuse cross bar at basal third of middle and hind thighs; claws piceous.

---

[8] Trans. Am. Ent. Soc., XII, Suppl. Proc. Ent. Sect., p. xiii, (1886).

Male genitalia.—Piceous brown; broad and strongly concave superiorly, both lateral and median lobes strongly curved upward, the former gradually narrowed to the truncate tips, the latter subacute at the slightly reflexed apex.

Length, 7 to 7.8 mm.; width, 4 to 4.3 mm.

Type locality.—"Canada, taken by Dr. Bigsby."

Of this extremely rare species, Regimbart, in the Third Supplement to his Monograph gives us a detailed description, drawn from a single female specimen which was sent him by Mr. Arrow of the British Museum, as being apparently the same as Kirby's type, described in 1837. This specimen is said to be from Lake Huron. So far as I know, no other examples had been taken down to the summer of 1917, when in looking over a mixed lot of Gyrini taken by Mr. J. B. Wallis along the Hudson Bay Railway, six specimens of very large size attracted my attention, and suggested the possibility that I had before me representatives of this almost mythical species. That these are the true *impressicollis* I have now no doubt whatever. They were taken at Piquitenay River, July 6, 1917.

Aside from the size, which is conspicuously greater than of any other species known to us, I note that the basal joint of the anterior male tarsus is here as broad as any that follow, while in all our other species it is distinctly less wide than the two following joints. Furthermore the first ventral segment is shorter and the fifth is longer than in any other species; while the genital organs are absolutely unlike anything else in the genus.

List of North American Species of Gyrinus, with Original Bibliographic Citations

Owing to the numerous erroneous references, a complete bibliography is not attempted. The only works that the student need consult are the papers of Aubé and LeConte, and the monograph of Regimbart with its several supplements.

1. *G. minutus* Fabricius, 1801, Syst. Eleut., I, p. 276.
2. *G. rockinghamensis* LeConte, 1868, Proc. Acad. Nat. Sci. Phila., 1868, pp. 370, 373.
3. *G. ventralis* Kirby, 1837, Faun. Bor. Amer., IV, p. 80.
4. *G. fraternus* Couper, 1865, Can. Nat., 2nd series, II, p. 60.
5. *G. aeneolus* LeConte, 1868, loc. cit., p. 368, 370.
6. *G. woodruffi* new species.

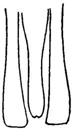
7. *G. marginellus* new species.
8. *G. dichrous* LeConte, 1868, loc. cit., p. 368, 371.
9. *G. latilimbus* new species.
   limbatus LeConte, nec Say.
10. *G. bifarius* new species.
11. *G. confinis* LeConte, 1868, loc. cit., p. 368, 370.
12. *G. plicifer* LeConte, 1851, Ann. Lyc. Nat. Hist., New York, v, p. 209.
13. *G. pachysomus* new species.
14. *G. elevatus* LeConte, 1868, loc. cit., p. 368, 371.
15. *G. consobrinus* LeConte, 1851, loc. cit., p. 209.
16. *G. aquiris* LeConte, 1868, loc. cit., p. 368, 371.
17. *G. lecontei* new species.
   ventralis LeConte, nec Kirby.
18. *G. maculiventris* LeConte, 1868, loc. cit., p. 368, 371.
19. *G. pleuralis* new species.
20. *G. affinis* Aube, 1838, Spec., p. 669.
   ? canadensis Regimbart, 1883, Ann. Soc. Ent. Fr., 1883, p. 159.
21. *G. pectoralis* LeConte, 1868, loc. cit., p. 370, 372.
22. *G. parcus* Say, 1834, Trans. Am. Phil. Soc., p. 448; ed. LeConte, II, p. 562.
23. *G. borealis* Aubé, 1838, Spec., p. 692.
   ? corpulentus Regimbart, 1883, Ann. Soc. Ent. Fr., 1883, p. 178.
24. *G. pugionis* new species.
25. *G. pernitidus* LeConte, 1868, loc. cit., p. 369, 372.
26. *G. picipes* Aubé, 1838, Spec., p. 694.
27. *G. lugens* LeConte, 1868, loc. cit., p. 369, 372.
28. *G. analis* Say, 1825, Trans. Am. Phil. Soc., II, p. 108; ed. Le C., II, p. 520.
29. *G. opacus* Sahlberg, 1817, Ins. Fenn., IV, p. 45.
30. *G. wallisi* new species.
31. *G. frosti* new species.
32. *G. gibber* LeConte, 1868, loc. cit., p. 370, 372.
33. *G. impressicollis* Kirby, 1837, Faun. Bor. Amer., IV., p. 79.

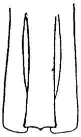
Unidentified Species

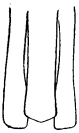
G. sayi Aubé, 1838, Spec., p. 698.
G. lateralis Aubé, 1838, Spec., p. 673.
G. fuscipes Motschulsky, 1859, Bull. Soc. Nat. Mosc., II, p. 173.
G. marginiventris Motschulsky, ibid., p. 174.

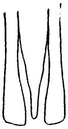
EXPLANATION OF PLATE XVI

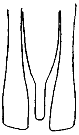
Male genitalia as viewed from above. The numbers are those attached to the species in the above list. Figures 33a and 33b show superior and lateral views respectively. In figures 18 and 27 the side view of the tip of the middle lobe is also shown.

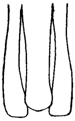

1

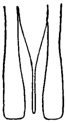

3

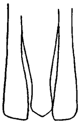

4

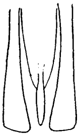

5

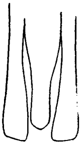

6

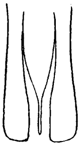

7

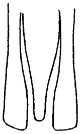

8

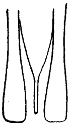

9

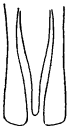

10

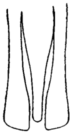

11

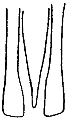

12

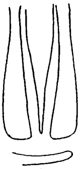

13

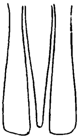

14

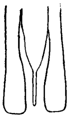

15

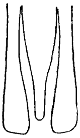

16

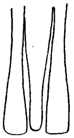

17

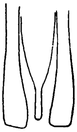

18

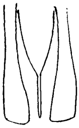

19

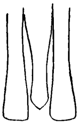

20

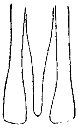

21

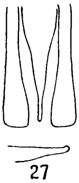

22

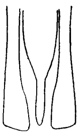

23

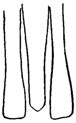

24

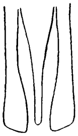

25

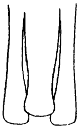

26

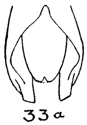

27

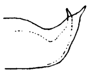

28


29


30


31


33a


33b

FALL—NORTH AMERICAN GYRINUS (COLEOPTERA)